

# VS 9 VITAL SIGN MONITOR

## Technical Specifications

**Dimension:** 10.8" (H) x 7.3" (W) x 5.3 (D)"  
27.5 cm (H) x 18.5 cm (W) x 13.5 cm (D)

**Weight:** 7.5 lbs (3.4 kg) (with Masimo SpO<sub>2</sub>, NIBP, recorder, and a battery; without accessories.)

**Screen:** 10.1-inch, 1280 x 800 pixels  
standard capacitive touchscreen  
support multi-touch operation

Meet standards of ISO 80601-2-30.

**Technique:** Oscillometry, support in inflation and deflation

**Operation Mode:** Manual, Auto, STAT, Sequence, and BP averaging

**Parameters:** Systolic, Diastolic, Mean

**Typical Measurement Time:** 15 s (Inflation algorithm, with CM1303/ CM1503 cuff, PR within 60 to 200 bpm and systolic pressure within 80 to 120 mmHg)

**Max Measurement Time:** Adult/Pediatric: 180 s, Neonate: 90 s

**Systolic Range:** Adult: 25 to 290 mmHg  
Pediatric: 25 to 240 mmHg  
Neonate: 25 to 140 mmHg

**Diastolic Range:** Adult: 10 to 250 mmHg  
Pediatric: 10 to 200 mmHg  
Neonate: 10 to 115 mmHg

**Mean Range:** Adult: 15 to 260 mmHg  
Pediatric: 15 to 215 mmHg  
Neonate: 15 to 125 mmHg

**Accuracy:** Max mean error:  $\pm 5$  mmHg  
Max standard deviation: 8 mmHg

**NIBP Resolution:** 1 mmHg

**Assisting Venous Puncture:** Yes

Meet standards of ISO 80601-2-61.

**Module:** Masimo, Nellcor

**SpO<sub>2</sub> Range:** Nellcor: 0 to 100%  
Masimo: 1 to 100%

**Resolution:** 1%

**Accuracy:** Nellcor:  $\pm 2\%$  (70 to 100%, Adult/Pediatric);  
 $\pm 3\%$  (70 to 100%, Neonate)  
Unspecified (0 to 69%)

Masimo:  $\pm 2\%$  (70 to 100%, Adult/Pediatric, non-motion)  
 $\pm 3\%$  (70 to 100%, Neonate, non-motion)  
 $\pm 3\%$  (70 to 100%, motion)  
Unspecified (1 to 69%)

**Perfusion Indicator (PI)** Yes, for Masimo SpO<sub>2</sub>

**Pitch Tone:** Yes

**Refresh Rate:** 1 s

**PR Range:** 20 to 300 bpm (from Nellcor SpO<sub>2</sub>)  
25 to 240 bpm (from Masimo SpO<sub>2</sub>)  
30 to 300 bpm (from NIBP)

**Accuracy:**  $\pm 3$  bpm (20 to 250 bpm, from Nellcor SpO<sub>2</sub>)  
 $\pm 3$  bpm (non-motion, from Masimo SpO<sub>2</sub>)  
 $\pm 5$  bpm (motion, from Masimo SpO<sub>2</sub>)  
 $\pm 3$  bpm or  $\pm 3\%$ , whichever is greater (from NIBP)

**Refreshing Rate:** 1 s



Meet standard of ISO 80601-2-56.

**Technique:** Thermal resistance

**Operating Mode:** Predictive mode, Monitor mode

**Predictive Mode:** 34 to 43 °C (93.2 to 109.4 °F)

**Monitor Mode:** 25 to 44 °C (77 to 111.2 °F)

**Temp Range:** 25 to 32 °C (not including 32 °C):  $\pm 0.2$  °C  
32 to 44 °C (including 32 °C):  $\pm 0.1$  °C  
or  
77 to 89.6 °F (not including 89.6 °F):  $\pm 0.4$  °F  
89.6 to 111.2 °F (including 89.6 °F):  $\pm 0.2$  °F

**Temp Resolution:** 0.1 °C

**Temp Range:** 15.5 °C to 42.0 °C (60.0 °F to 107.6 °F)

**Temp Accuracy:**  $\pm 0.2$  °C or  $\pm 0.4$  °F

**Temp Resolution:** 0.1 °C or 0.1 °F

Meet standard of ISO 80601-2-55.

**Sample Flow Rate:** 50 ml/min (With Oridion Sampling line)

**Sample Flow Rate Tolerance:**  $\pm 15$  ml/min or  $\pm 15\%$ , whichever is greater.

**Response Time:** 5.0 s With an Oridion standard sampling line

**Sweep Speed:** 3 mm/s, 6.25 mm/s, 12.5 mm/s, 25 mm/s, 50 mm/s

**CO<sub>2</sub> Range:** 0-150 mmHg

**Accuracy:** Full Accuracy Mode: 0 - 40 mmHg:  $\pm 2$  mmHg  
41 - 76 mmHg:  $\pm 5\%$  of reading  
77 - 99 mmHg:  $\pm 10\%$  of reading  
100 to 150 mmHg:  $\pm (3\text{mmHg} + 8\%$  of reading)

ISO Accuracy Mode: Add  $\pm 2$  mmHg to the full accuracy mode

**CO<sub>2</sub> Resolution:** 1 mmHg

**awRR Range:** 0 to 150 rpm

**awRR Accuracy:**  $\pm 1$  rpm (0 to 59 rpm)  
 $\pm 2$  rpm (60 to 150 rpm)

**Apnea Time:** 10 s, 15 s, 20 s, 25 s, 30 s, 35 s, 40 s

Support up to 30 manual input parameters (customizable)

# VS 9 VITAL SIGN MONITOR

## Technical Specifications

### Display

#### Spot Check Mode:

Up to 5000 groups

Continuous Mode: Up to 240 hours @ 30 seconds

Events: Up to 200 events

### Alarm

Audible Indicator: 3 different alarm tones, and prompt tone

Visible Indicator: Red/yellow/cyan LED, and alarm message display

Provide AlarmSight infographic alarm indicator.

### Connectivity Applications on CAA

MEWS, GCS, Pain score, Targeted Goal View, Orthostatic BP Measurement.

### Bluetooth

Protocol: Bluetooth 5

Modulation Mode: GFSK

Operating Frequency: 2402 MHz to 2480 MHz

Wireless Data Rate: 2 Mbps, 1 Mbps, 125 kbps

Output Power: 8 dBm ± 4 dB

Data Security: AES128

### WiFi Connection

Protocol: IEEE 802.11a/b/g/n/ac

Modulation Mode: BPSK, QPSK, 16QAM, 64QAM, 256QAM

Operating Frequency: 2412 MHz to 2472 MHz

5180 MHz to 5320 MHz

5500 MHz to 5700 MHz

5745 MHz to 5825 MHz

Wireless Baud Rate: IEEE 802.11a: 6 to 54 Mbps

IEEE 802.11b: 1 to 11 Mbps

IEEE 802.11g: 6 to 54 Mbps

IEEE 802.11n: MCS0 to MCS7

IEEE 802.11ac: MCS0 to MCS8

Output Power: < 20 dBm (CE requirement: detection mode- RMS)

< 30 dBm (FCC requirement: detection mode- peak power)

Operating Mode: Infrastructure

Data Security

Standard: WPA/WPA2-PSK, WPA/WPA2-Enterprise, WPA/WPA2 CCKM

EAP Method: LEAP, EAP-TTLS, EAP-TLS, EAP-FAST, PEAPMsChapV2, PEAP-GTC, PEAP-TLS

Encryption: TKIP and AES

### Ports

Main Unit:

AC power connector (1)

Network connector (1), RJ45

USB 2.0 connector (2)

Multi-Functions connect (1)

Equipotential grounding terminal (1)

External battery connector (1)

Barcode Scanner: Support 1D and 2D barcode

Thermal Recorder: 3 traces (paper 50 mm width, 20 m length)

Data Output: HL7, eGateway, VitalsLink (Cerner™)

Auth. Management: MLDAP, Imprivata™

### Power

Line Voltage:

100 to 240 VAC (±10 %)

Current:

0.9 to 0.5A

Frequency:

50/60 Hz (±3 Hz)

Battery:

5600mAh rechargeable smart Li-ion battery

Run Time:

At least 8 hours when powered by a new, fully-charged battery at 25 °C ±5 °C on standard configuration (SpO<sub>2</sub> and NIBP), with SpO<sub>2</sub> sensor connected, auto NIBP measurements at an interval of 15 minutes, and screen brightness set to factory default.

Recharge Time

(power on):

4 hours to 100%

### Environment

Operating:

0 to 40 °C (without CO<sub>2</sub>)

5 to 40 °C (with CO<sub>2</sub>)

Storage:

-20 to 60 °C

Humidity:

Operating:

15 to 95 % (non condensing)

Storage:

10 to 95 % (non condensing)

Barometric Pressure

Operating:

120 to 805.5 mmHg (57 to 107.4 kPa) (without CO<sub>2</sub>)

430 to 790 mmHg (57.3 to 105.3 kPa) (with CO<sub>2</sub>)

Storage:

120 to 805.5 mmHg (16 to 107.4 kPa) (without CO<sub>2</sub>)

430 to 790 mmHg (57.3 to 105.3 kPa) (with CO<sub>2</sub>)